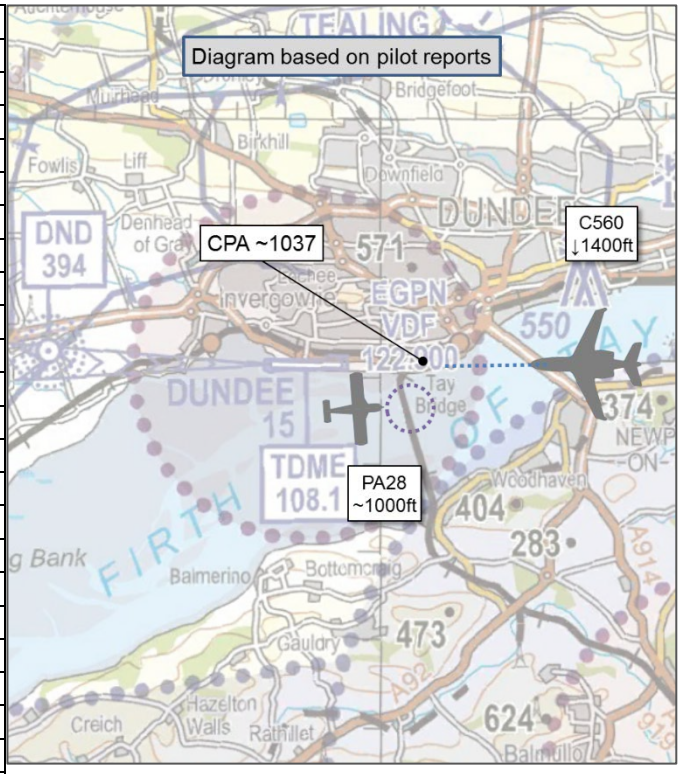
AIRPROX REPORT No 2019132

Date: 01 Jun 2019 Time: 1037Z Position: 5627N 00300W Location: Dundee

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C560	PA28
Operator	Civ Comm	Civ FW
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	ACS
Provider	Dundee	Dundee
Altitude/FL		
Transponder	A, C, S	A, C, S
Reported		
Colours		
Lighting		
Conditions	VMC	VMC
Visibility		
Altitude/FL	1400ft	NR
Altimeter	QNH (1016hPa)	QNH
Heading	270°	
Speed	150kt	
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	NR	NR
Recorded	NK	



THE C560 PILOT reports that during the approach into Dundee, an orbiting PA28 aircraft came too close and triggered a TCAS RA 'climb'. They followed the RA and performed a go-around before conducting another, uneventful, approach.

THE PA28 PILOT was a solo student in the Dundee visual circuit but, due to a delay in the tracing process the pilot had left before a report could be obtained.

THE DUNDEE CONTROLLER reports the C560 was on an RNAV approach to RW27, under instruction to report the FAF and 3 further aircraft were in the visual circuit. He instructed the PA28 pilot to orbit at the end of the downwind leg, which he did in the vicinity of the railway bridge. He also instructed another aircraft to orbit in the middle of the downwind leg. The C560 had not reported at the FAF as expected so he requested an update on their position [Dundee does not have any radar] and they confirmed inside 4nm. He cleared the C560 to land, and then instructed another aircraft to take up an orbit at the beginning of the downwind leg. He became aware that the PA28 was now east of the railway bridge, so he instructed the pilot to position nearer to the south bank. The C560 was on short final when the crew transmitted that they were breaking off the approach and conducted a go-around, climbing straight ahead on runway track. No reason for the go-around was given. The C560 carried out a further RNAV approach and landed at 1056z, with no mention of an Airprox.

Factual Background

The weather at Dundee was recorded as follows:

```
METAR EGPN 011020Z 25011KT 9999 FEW012 15/12 Q1016=
```

Analysis and Investigation

CAA ATSI

The C560 was inbound to Dundee on the RNAV Approach to RW27, in receipt of a Procedural Service from Dundee ATC. The PA28 was in the visual circuit at Dundee and was holding in an orbit on the end of the downwind leg, in receipt of an Aerodrome Control Service from Dundee ATC. The Dundee controller was providing a combined Aerodrome and Approach Procedural Service at the time of the Airprox. There were 3 aircraft in the left-hand visual circuit, another aircraft holding at a nearby reservoir, one transit aircraft on a Basic Service and one aircraft taxiing for departure. The Dundee R/T and the Area Radar recordings were reviewed for the period. The C560 faded from radar cover at altitude 1800ft and the PA28 did not display on the radar. As such CPA could not be measured and no meaningful screenshots could be produced.

At 1033:00, the C560 pilot made initial R/T contact with the controller and advised that they had just passed IBVIM inbound for the RNAV Approach RW27. A Procedural Service was agreed, and the pilot was cleared for the RNAV Approach, instructed to descend with the procedure and report at the final approach fix. The pilot provided a full and accurate readback.

Between 1033:00 and 1036:50, there were several position reports made by the pilots of the aircraft operating in the visual circuit. These calls resulted in instructions being issued for the PA28 pilot to hold at the end of the downwind leg, one further aircraft to hold at the mid-point downwind and a third aircraft to hold at the start of the downwind leg. The instruction to the PA28 pilot was *"at the end of the downwind leg take up a right- hand orbit until advised".* The readback from the pilot was *"end of downwind leg, right- hand orbit, callsign".*

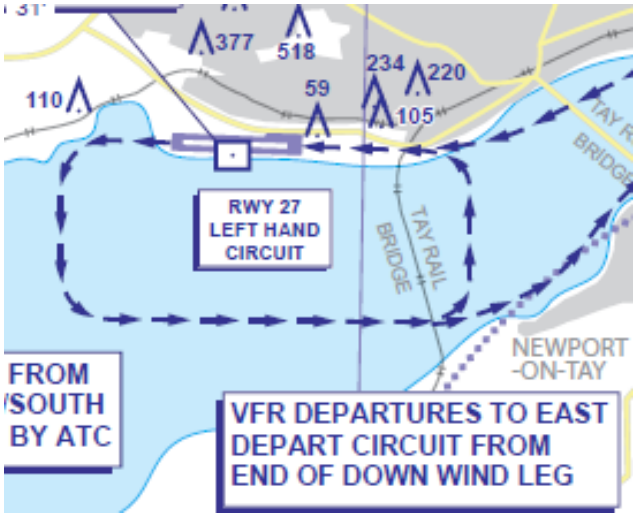
At 1036:50, the controller asked the C560 pilot to report their position. The pilot said that they had just passed the Final Approach Fix and were 4 miles out. The controller cleared the pilot to land RW27 and passed the surface wind.

At 1037:10, the controller passed Traffic Information to the C560 pilot advising them that there was one light aircraft orbiting at the southern section of the railway bridge. The pilot advised that they were looking.

At 1037:30, the controller instructed the PA28 pilot to proceed further to the south, the pilot asked the controller to say again and the controller instructed the pilot to orbit further south, over the south bank. The pilot read this back correctly.

At 1037:50 the C560 pilot reported breaking off the approach.

UK AIP AD 2-EGPN-4-1 Standard Left-Hand circuit Runway 27 with Railway Bridge displayed



CAP 493 Section 1 Chapter 12 Procedural Service (Relevant paragraphs)

Definition

Procedural Service is an ATS where, in addition to the provisions of Basic Service, the controller provides restrictions, instructions, and approach clearances, which if complied with, will achieve deconfliction minima against other aircraft participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.

Traffic Information

The controller shall provide traffic information, if it is considered that a confliction may exist, on other known traffic; however, there is no requirement for deconfliction advice to be passed, and the pilot remains responsible for collision avoidance.

Within Class G Airspace under a Procedural Service, pilots remain responsible for their own collision avoidance. However, controllers are responsible for assisting pilots to meet this responsibility by providing pilots with Traffic Information on known traffic. During the period of the ATSI R/T review, the controller appeared to be planning effectively, passing relevant Traffic Information, and had organised all circuit traffic to hold to the south of the final approach track to enable the C560 to integrate safely. Traffic Information on the orbiting PA28 was passed to the pilot of the C560, and when the controller noticed that the PA28 pilot had strayed further north of their intended orbit area, they instructed the pilot to move further away from the final approach track to the south bank.

UKAB Secretariat

The C560 and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1].

Summary

An Airprox was reported when a C560 and a PA28 flew into proximity in the approach to Dundee at 1037hrs on Saturday 1st June 2019. The C560 pilot was operating under IFR in VMC and conducting an RNAV approach, in receipt of a Procedural Service from Dundee, the PA28 was VFR in VMC in the visual circuit, and was in receipt of a Aerodrome Control Service from Dundee.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the C560 pilot, transcripts of the relevant RT frequencies, reports from the air traffic controllers involved and reports from the appropriate ATC operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first looked at the actions of the C560 pilot. He was making an IFR approach to Dundee when he received a TCAS RA instructing him to climb and so executed a go-around (**CF2**, **CF3**). A member who had regularly flown into Dundee commented that there was a steep angle of approach into Dundee (3.5°) and this probably meant the C560 was above 1000ft (the height below which TCAS RA's are usually inhibited) when at 3nm, relatively close to the airfield. They speculated that this meant that when the trajectory of the PA28 alerted on the TCAS, the C560 pilot had no choice but to go around; even if he could see the PA28 and knew it was not a threat, he was obliged to follow the TCAS RA (**CF4**). Members thought it was a shame that he didn't tell the controller why he was going around

[1] SERA.3205 Proximity..

because, had he done so, it would have meant the investigation process at Dundee would have been triggered and the PA28 pilot may have been contacted for a report in a more timely manner.

Turning to the PA28 pilot, although there was not a report from him, members agreed that he had been told to conduct an orbit downwind by the controller, and although he ended up creeping close to the base leg (**CF1**), the controller hadn't initially given him a fixed point to orbit at other than 'at the end of the downwind leg' which was somewhat open to interpretation. Members discussed whether, because he was a student, he should have been given a definitive place to orbit, particularly because the south side of the river gradually routes northwards and so it is easy for students who are using the south-side as their 'end of the downwind leg' to be pulled towards the base leg without realising it. A more definitive 'orbit at the south end of the railway bridge' might have ensured better compliance.

Finally, the Board looked at the actions of the controller. Wondering whether he should have been more aware that the PA28 pilot was a solo student and given him a more specific instructions, members noted that CAP413[2] required solo-students to use the callsign 'student' on initial contact to ensure controllers knew that a student was alone in the cockpit. It was not known whether this had been the case, but controlling members opined that it was usually obvious to controllers when aircraft based at their unit were solo-students anyway. Furthermore, the Board was told that using the phrase 'orbit downwind' was fairly standard practice and it would be expected that most students should be able to follow such an instruction. The Board agreed that asking pilots to orbit was an acceptable method of sequencing aircraft in the circuit, even for students, although this incident perhaps served as a reminder of their sometimes-limited capacity. Notwithstanding, the controller had kept an eye on the PA28, had noticed when it appeared to drift towards the C560 and had told the pilot to orbit on the south-bank of the river. [UKAB Secretariat Note: Dundee ATC have subsequently confirmed that they have very clear written procedures detailing the handling of solo and low-hours students.]

In assessing the risk of the Airprox, the Board quickly agreed that although the generation of a TCAS RA was less than ideal and indicated that safety had been reduced, there had been no risk of collision. Accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019132		
CF	**Factor**	**Description**	**Amplification**
	Flight Elements		
	• Tactical Planning and Execution		
1	Human Factors	• Action Performed Incorrectly	Incorrect or ineffective execution
	• Situational Awareness of the Conflicting Aircraft and Action		
2	Human Factors	• Interpretation of Automation or Flight Deck Information	CWS sighting report
	• Electronic Warning System Operation and Compliance		
3	Contextual	• ACAS/TCAS RA	TCAS RA event
4	Technical	• ACAS/TCAS Nuisance Alarm	CWS alerted inaptly for VFR flight

Degree of Risk: C.

Safety Barrier Assessment[3]

[2] CAP413 2.33 Students

[3] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the PA28 pilot flew too close to the C560 whilst orbiting.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the solo student in the PA28 did not realise his trajectory would trigger a TCAS RA in the C560.

See and Avoid was assessed as **not used** because, although the C560 had undoubtedly seen the PA28, the avoidance manoeuvre was conducted in accordance with TCAS indications and commands.